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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/687,030

10/16/2003

Paul S. Shirley

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PATENT LAW OFFICE OF DAVID G. BECK

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EXAMINER

TRINH, HOA B

ART UNIT

PAPER NUMBER

2814

MAIL DATE

DELIVERY MODE

10/15/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/687,030	Applicant(s) SHIRLEY, PAUL S.	
	Examiner (Vikki) Hoa B. Trinh	Art Unit 2814	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 July 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Species I, claims 1-13, in the reply filed on 07/05/07 is acknowledged.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-8 are rejected under 35 U.S.C. 102(b) as being anticipated by Hillenius (5,642,014).

As to claim 1, Hillenius discloses a power source comprising:

at least one non-radioactive power source 369 (Vss power, fig. 8) ; and

at least one radioactive power source 350 (fig. 8, Vdd power) in electrical communication with

said at least one non-radioactive power source, said at least one radioactive power source

comprising: at least one junction of a first material 216 (n-layer, figs. 5D-5E) and a second

material 202 (p-substrate) (fig. 5D-5E) , wherein said first material has a first electrochemical

potential and said second material has a second electrochemical potential, wherein said first and

second electrochemical potentials are different; and at least one radiation source 228 (fig. 5E).

As to claim 2, the at least one radioactive power source Vdd, 228 maintains a charge associated with said at least one non-radioactive power source Vss (fig. 8).

As to claim 3, a power conditioning circuit 352 (fig. 8) interposed between and in electrical communication with said at least one non-radioactive power source 369 and said at least one radioactive power source 350.

As to claim 4, said power conditioning circuit 352 (fig. 8) further comprising a power management circuit.

As to claim 5, a pair of power source outputs 350, 369 (fig. 8) and a power conditioning circuit 352, said power conditioning circuit interposed between and in electrical communication with said at least one non-radioactive power source and said pair of power source outputs.

As to claim 6, said at least one junction 237 (pn junction, figures 5C-5E,) is selected from the group consisting of homo-junctions and hetero-junctions.

As to claim 7, said at least one junction is a metal-oxide-semiconductor structure (figs. 5c-5E).

As to claim 8, said at least one radioactive power source is a beta cell (col. 5, lines 40-50).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

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1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hillenius in view of Aselage et al. (6,479,919; hereinafter as Aselage).

Hillenius discloses the invention substantially as claimed, except that the beta cell is comprised of an icosahedral boride semiconductor.

Aselage discloses an analogous device having a beta cell made of icosahedral boride semiconductor (see abstract) for providing an efficient energy source (col. 2, lines 42-45).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of Hillenius with the icosahedral boride semiconductor for the beta cell, as taught by Aselage, for the advantage as mentioned in the above.

8. Claims 10-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hillenius in view of Hampden-Smith et al. (7,211,345; hereinafter as Hampden-Smith).

Hillenius discloses the invention substantially as claimed, except that the nonradioactive source is a zinc air battery and that the battery is a capacitor of a particulars or a fuel cell of the particulars, as claimed.

Hampden-smith discloses an analogous nonradioactive source comprising a zinc air battery 500 (figs. 14a-14b), wherein the nonradioactive source is also a capacitor (col. 50, lines 1-5, 40-67) that is made of metal-dielectric-metal capacitors; and wherein the nonradioactive source is also a fuel cell (col. 43, lines 25-67) that is made of hydrogen-oxygen fuel cells for providing energy efficiency.

Therefore, it would have been obvious to one of ordinary skills in the art at the time the invention was made to modify the invention of Hillenius with the nonradioactive source being zinc-air battery, as claimed in claim 10, or a capacitor of metal-dielectric-metal, as claimed in claim 11, or fuel cells made from hydrogen-oxygen fuel cells, as claimed in claims 12-13, as taught by Hampden-Smith, for the advantage as mentioned in the above.

Conclusion

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to (Vikki) Hoa B. Trinh whose telephone number is (571) 272-1719. The Examiner can normally be reached from Monday-Thursday, 9:00 AM - 5:30 PM Eastern Time. If attempts to reach the examiner by telephone are unsuccessful, the Examiner's supervisor, Mr. Wael Fahmy, can be reached at (571) 272-1705. The office fax number is 571-273-8300. Any request for information regarding to the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Also, status information for published applications may be obtained from either Private PAIR or Public Pair. In addition,

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status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. If you have questions pertaining to the Private PAIR system, please contact the Electronic Business Center (EBC) at 866-217-9197 (toll free). Lastly, paper copies of cited U.S. patents and U.S. patent application publications will cease to be mailed to applicants with Office actions as of June 2004. Paper copies of foreign patents and non-patent literature will continue to be included with office actions. These cited U.S. patents and patent application publications are available for download via the Office's PAIR. As an alternate source, all U.S. patents and patent application publications are available on the USPTO web site (www.uspto.gov), from the Office of Public Records and from commercial sources. Applicants are referred to the Electronic Business Center (EBC) at <http://www.uspto.gov/ebc/index.html> or 1-866-217-9197 for information on this policy. Requests to restart a period for response due to a missing U.S. patent or patent application publications will not be granted.

/(Vikki) Hoa B Trinh/

Examiner, Art Unit 2814

/Howard Weiss/

Primary Examiner, Art Unit 2814